

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (canceled).

Claim 2 (currently amended): A method for operating a node in a layer 2 network to handle multicast traffic, said method comprising:

receiving at a switch within said layer 2 network, via a first port, an Internet Group Management Protocol (IGMP) join message for a multicast distribution group, said IGMP join message received from a neighbor switch in said layer 2 network;

establishing multicast state information at the switch for said multicast distribution group based on said join message, if such state information has not already been established;

adding said first port to a port list associated with said state information at the switch, said port list being used to select ports for forwarding received multicast traffic of said multicast distribution group;

forwarding said IGMP join message from the switch towards an attraction point of said layer 2 network via a spanning tree defined within said layer 2 network, wherein the attraction point is a root bridge and layer 2 switch in said layer 2 network, and said IGMP join messages are forwarded from the switch towards the attraction point without the use of layer 3 routers;

receiving at the switch, multicast traffic addressed to said multicast distribution group and transmitted from the attraction point; and

forwarding said multicast traffic via a multicast distribution tree formed based on said spanning tree, wherein forwarding said multicast traffic comprises forwarding said multicast traffic towards the root bridge via a port selected according to said spanning tree, the root bridge located at a root of said spanning tree.

Claim 3 (canceled).

Claim 4 (canceled).

Claim 5 (previously presented): The method of claim 2 wherein forwarding said join message comprises:

flooding said join message via said spanning tree of said layer 2 network.

Claim 6 (previously presented): The method of claim 2 wherein forwarding said join message comprises:

forwarding said join message via one or more ports via which an attraction point advertisement message was previously received.

Claim 7 (canceled).

Claim 8 (previously presented): The method of claim 2 wherein forwarding said multicast traffic comprises:

forwarding said multicast traffic via one or more ports via which said join message was received earlier.

Claim 9 (canceled).

Claim 10 (canceled).

Claim 11 (canceled).

Claim 12 (currently amended): A method for operating a node in a layer 2 network to handle multicast traffic, said method comprising:

receiving multicast traffic at a switch within said layer 2 network, from a neighbor node in said layer 2 network, said multicast traffic being addressed to a multicast distribution group having a media access control address assigned thereto; and

forming at the switch a multicast distribution tree based on a spanning tree defined within said layer 2 network;

in response to said multicast traffic, flooding an advertisement message throughout said layer 2 network via said spanning tree of said layer 2 network, said advertisement message establishing said node as an attraction point for said multicast distribution group;

wherein said advertisement message comprises an IP address of the neighbor node and said media access control address assigned to said multicast distribution group; and

wherein the attraction point is a root bridge and layer 2 switch to which all Internet Group Management Protocol (IGMP) join messages for said multicast distribution group are forwarded via a multicast distribution tree without the use of layer 3 routers.

Claim 13 (currently amended): A method for operating a node in a layer 2 network to handle multicast traffic, said method comprising:

receiving at a switch within said layer 2 network, via a first port, an advertisement message identifying an attraction point for multicast traffic addressed to a multicast distribution group; and

propagating said advertisement message further through said layer 2 network via a spanning tree of said layer 2 network, wherein propagating comprises flooding said advertisement message to each port connected to a link of said spanning tree other than the port on which said advertisement was received;

wherein the attraction point is a first-hop layer 2 switch connected to a source node and all Internet Group Management Protocol (IGMP) join messages for said multicast distribution group are forwarded to the attraction point without the use of layer 3 routers.

Claim 14 (original): The method of claim 13 further comprising:

establishing state information for said multicast distribution group if such state information has not already been established; and

adding said first port to a source port list of said multicast distribution group.

Claim 15 (canceled).

Claim 16 (currently amended): A non-transitory computer-readable storage medium for use in operating a node in a layer 2 network to handle multicast traffic, said storage medium located at a switch in said layer 2 network and having stored thereon:

code that causes reception within said layer 2 network of, via a first port, an Internet Group Management Protocol (IGMP) join message for a multicast distribution group, said IGMP join message received from a neighbor switch in said layer 2 network;

code that causes establishment of multicast state information for said multicast distribution group based on said join message, if such state information has not already been established;

code that causes addition of said first port to a port list associated with said state information, said port list being used to select ports for forwarding received multicast traffic of said multicast distribution group;

code that causes forwarding said IGMP join message towards an attraction point of said layer 2 network via a spanning tree of said layer 2 network, wherein the attraction point is a root bridge and layer 2 switch in said layer 2 network, and said IGMP join messages are forwarded from the switch towards the attraction point without the use of layer 3 routers;

code that causes reception at the switch of multicast traffic address to said multicast distribution group and transmitted from the attraction point; and

code that causes forwarding multicast traffic via a multicast distribution tree formed based on said spanning tree, wherein forwarding said multicast traffic comprises forwarding said multicast traffic towards the root bridge via a port selected according to said spanning tree, the root bridge located at a root of said spanning tree.

Claim 17 (canceled).

Claim 18 (canceled).

Claim 19 (previously presented): The storage medium of claim 16 wherein code that causes forwarding said join message comprises:

code that causes flooding of said join message via said spanning tree of said layer 2 network.

Claim 20 (previously presented): The storage medium of claim 16 wherein code that causes forwarding said join message comprises:

code that causes forwarding of said join message via one or more ports via which an attraction point advertisement message was previously received.

Claim 21 (canceled).

Claim 22 (previously presented): The storage medium of claim 16 wherein code that causes forwarding of said multicast traffic comprises:

code that causes forwarding of said multicast traffic via one or more ports via which said join message was received earlier.

Claim 23 (canceled).

Claim 24 (canceled).

Claim 25 (canceled).

Claim 26 (currently amended): A non-transitory computer-readable storage medium for use in operating a node in a layer 2 network to handle multicast traffic, said storage medium located at a switch in said layer 2 network and having instruction stored thereon, said instructions comprising:

code that causes reception of multicast traffic from a neighbor node in said layer 2 network, said multicast traffic being addressed to a multicast distribution group having a media access control address assigned thereto; and

code that causes forming a multicast distribution tree based on a spanning tree defined within said layer 2 network;

code that causes, in response to said multicast traffic, flooding of an advertisement message throughout said layer 2 network via a spanning tree of said layer 2 network, said advertisement message establishing said node as an attraction point for said multicast distribution group;

wherein said advertisement message comprises an IP address of the neighbor node and said media access control address assigned to said multicast distribution group; and

wherein the attraction point is a root bridge and layer 2 switch to which all Internet Group Management Protocol (IGMP) join messages for said multicast distribution group are forwarded via a multicast distribution tree without the use of layer 3 routers.

Claim 27 (currently amended): A non-transitory computer-readable storage medium for operating a node in a layer 2 network to handle multicast traffic, said computer-readable storage medium located at a switch in said layer 2 network and having instructions stored thereon, said instructions comprising:

code that causes reception of, via a first port, an advertisement message identifying an attraction point for multicast traffic addressed to a multicast distribution group; and

code that causes propagation of said advertisement message further through said layer 2 network via a spanning tree of said layer 2 network, wherein propagation comprises flooding said advertisement message to each port connected to a link of said spanning tree other than the port on which said advertisement was received;

wherein the attraction point is a first-hop layer 2 switch connected to a source node and all Internet Group Management Protocol (IGMP) join messages for said multicast distribution group are forwarded to the attraction point without the use of layer 3 routers.

Claim 28 (original): The storage medium of claim 27 wherein said instructions further comprise:

code that causes establishment of state information for said multicast distribution group if such state information has not already been established; and

code that causes addition of said first port to a source port list of said multicast distribution group.

Claim 29 (canceled).

Claim 30 (currently amended): Apparatus for operating a node in a layer 2 network to handle multicast traffic, said apparatus comprising a switch within said layer 2 network, the switch comprising:

a processor that executes instructions; and

a memory device that stores said instructions, said instructions comprising:

code that causes reception within said layer 2 network of, via a first port, an Internet Group Management Protocol (IGMP) join message for a multicast distribution group, said IGMP join message received from a neighbor switch in said layer 2 network; and

code that causes establishment of state information for said multicast distribution group based on said join message, if such state information has not already been established;

code that causes addition of said first port to a port list associated with said state information, said port list being used to select ports for forwarding received multicast traffic of said multicast distribution group;

code that causes forwarding said IGMP join message towards an attraction point said layer 2 network via a spanning tree defined within said layer 2 network, wherein the attraction point is a root bridge and layer 2 switch in said layer 2 network, and said IGMP join messages are forwarded from the switch towards the attraction point without the use of layer 3 routers;

code that causes reception at the switch of multicast traffic addressed to said multicast distribution group and transmitted from the attraction point;

code that causes forwarding multicast traffic via a multicast distribution tree formed based on said spanning tree, wherein forwarding said multicast traffic comprises forwarding said multicast traffic towards the root bridge via a port selected according to said spanning tree, the root bridge located at a root of said spanning tree.

Claim 31 (canceled).

Claim 32 (canceled).

Claim 33 (previously presented): The method of claim 2 wherein a media access control address is assigned to said multicast distribution group.

Claim 34 (canceled).

Claim 35 (previously presented): The method of claim 12 further comprising periodically flooding said advertisement via said spanning tree.

Claim 36 (previously presented): The method of claim 12 further comprising maintaining a source port list and an outgoing port list for each flow of said multicast traffic.

Claim 37 (canceled).

Claim 38 (canceled).

Claim 39 (previously presented): The apparatus of claim 30 wherein said code that causes forwarding of said join message comprises code that causes flooding of said join message via said spanning tree of said layer 2 network.

Claim 40 (new): The apparatus of claim 30 wherein code that causes forwarding said join message comprises:

code that causes flooding said join message via said spanning tree of said layer 2 network.

Claim 41 (new): The apparatus of claim 30 wherein code that causes forwarding of said join message comprises:

code that causes forwarding of said join message via one or more ports via which an attraction point advertisement message was previously received.

Claim 42 (new): The apparatus of claim 30 wherein code that causes forwarding of said multicast traffic comprises:

code that causes forwarding of said multicast traffic via one or more ports via which said join message was received earlier.